

## **Remarks**

### Status of application

Claims 1-22 and 25-45 were examined and stand rejected in view of prior art. The prior art rejections are discussed in detail below. In view of the following remarks, reconsideration of the prior art rejections is respectfully requested.

### The invention

Applicant's invention comprises a computer-implemented system and methodology for specifying and enforcing entitlements for performance of financial transactions (see e.g., Applicant's specification, paragraph [0013], paragraphs [0043]-[0044], paragraphs [0055]-[0056], paragraph [0059]; also see generally, e.g., Fig. 1, Fig. 2, Fig. 3; Figs. 5A-B). Applicant's methodology includes providing a hierarchical entitlement structure with inheritance for specifying entitlements for performing financial transactions (see e.g., Applicant's specification, paragraph [0013], paragraph [0045], paragraph [0063], paragraphs [0066]-[0068], paragraph [0073], paragraph [0079], paragraph [0112]; also see, e.g., Fig. 4; Fig. 5A at 501-503), receiving user input for defining a plurality of entitlement groups of said hierarchical entitlement structure (see e.g., Applicant's specification, paragraph [0013], paragraphs [0046]-[0047], paragraph [0049], paragraph [0067], paragraph [0073], paragraphs [0079]-[0080], paragraph [0153]; also see, e.g., Fig. 4; Fig. 5A at 501-502), wherein each entitlement group has specified permissions to perform financial transactions, limits on performance of said financial transactions, and membership of each user (see e.g., Applicant's specification, paragraph [0013], paragraph [0044], paragraphs [0046]-[0047], paragraph [0049], paragraphs [0066]-[0068], paragraph [0073], paragraph [0081]; also see, e.g., Fig. 4; Fig. 5A at 503), in response to a particular user request to perform a financial transaction at runtime, identifying the particular user's membership in a certain entitlement group (see e.g., Applicant's specification, paragraph [0013], paragraphs [0046]-[0047], paragraph [0082]; also see, e.g., Fig. 5A at 504-505), and determining whether to allow the particular user to perform the financial transaction based on permissions and limits of said hierarchical entitlement structure applicable to the particular user's performance of the financial

transaction (see e.g., Applicant's specification, paragraph [0013], paragraphs [0046]-[0047], paragraphs [0083]-[0085]; also see, e.g., Figs. 5A-B at 506-511).

### Prior Art Rejections

#### A. First Section 103 Rejection: Win and Rowe

Claims 1, 4-5, 7-8, 10-16, 18-22 and 25-45 stand rejected under Section 103(a) and unpatentable over U.S. Patent 6,126,139 to Win (hereinafter "Win") in view of U.S. Published Application 2002/0029339 of Rowe (hereinafter "Rowe"). The Examiner continues to rely on Win's general teachings of role-based administrative privileges as being substantially equivalent to Applicant's claimed invention. However, Applicant's invention has specific features including a hierarchical structure for specifying and enforcing entitlements (including permissions and limits) for performing financial transactions that distinguish Applicant's claimed invention from Win as well as the secondary Rowe reference in a significant number of respects. Some of these significant differences with respect to the specific claim limitations of Applicant's claims are discussed below.

Initially, Applicant's claimed invention utilizes a **hierarchical structure with inheritance for specifying and enforcing entitlements** for performing financial transactions that is particularly useful in banking and other financial applications. This feature is specifically described, for example, in Applicant's claim 1 which includes the following claim limitations:

A method implemented in a computer system for specifying and enforcing entitlements for performance of financial transactions, the method comprising: in a computer system having at least a processor and memory, providing a hierarchical entitlement structure with inheritance for specifying entitlements for performing financial transactions;

(Applicant's claim 1, emphasis added)

Applicant's hierarchical entitlement structure includes a hierarchy of entitlement groups in which a given subordinate group inherits attributes from its parent (i.e., superior) group (see e.g., Applicant's specification, paragraph [0045]; also see e.g., Fig. 5A at 501-502). The inheritance from above is negative (i.e., restrictive) in nature (see

e.g., Applicant's specification, paragraph [0045]; also see, e.g., paragraph [0112]; also see e.g., Fig. 5A at 503). The root node resides at the top of the inheritance hierarchy, serving as an administrator who may perform all functions in the system (see e.g., Applicant's specification, paragraph [0045]). As the entitlement hierarchy of Applicant's solution is traversed downward from the root, additional restrictions are applied to subordinate roles; subordinate roles cannot have greater permissions than their parent (see e.g., Applicant's specification, paragraph [0045]; see also, paragraph [0068]).

Win's access control system does **not** include a comparable hierarchical entitlement structure with inheritance, nor does it relate to the performance of financial transactions. The first teachings of Win referenced by Examiner in the Final Rejection (page 3, re: claim 1) for the corresponding teachings simply describe that users may have various roles as follows:

Users are individuals who have a relationship with an organization and play various roles, and are registered in the system 2. Users may be members of an organization, or may be customers, suppliers, or business partners of the organization.

(Win, column 4, lines 22-26)

As illustrated above, Win makes no mention of any sort of hierarchical structure, inheritance, or entitlements for performing financial transactions.

The Examiner also references the following teachings of Win as corresponding to Applicant's claim limitations of a hierarchical entitlement structure with inheritance:

A Role may reflect a relationship of a User to the organization (employee, customer, distributor, supplier), their department within an organization (sales, marketing, engineering) or any other affiliation or function (member of quality task force, hotline staff member) that defines their information needs and thus their access rights or privileges.

(Win, column 5, lines 2-8)

Again, Win simply describes conventional role-based permissions and makes no mention of a "hierarchical entitlement structure" or "inheritance" or of "entitlements for performing financial transactions". Respectfully, Rowe's teachings of role-based permissions are not at all comparable to Applicant's claim limitations.

The Examiner does acknowledge that Win provides no teaching of entitlement groups having specified limits on the performance of financial transactions and membership of each user (Final Rejection, page 3, re: claim 1) as provided, for instance, in the following claim limitations of Applicant's claim 1:

receiving user input for defining a plurality of entitlement groups of said hierarchical entitlement structure, wherein each entitlement group has specified permissions to perform financial transactions, limits on performance of said financial transactions, and membership of each user;  
in response to a particular user request to perform a financial transaction at runtime, identifying the particular user's membership in a certain entitlement group; and  
determining whether to allow the particular user to perform the financial transaction based on permissions and limits of said hierarchical entitlement structure applicable to the particular user's performance of the financial transaction.

(Applicant's claim 1, emphasis added)

Therefore, the Examiner turns to Rowe as providing the corresponding teachings admittedly not provided by Win. However, Rowe's teachings are distinguishable in a number of respects as discussed below.

Rowe describes a solution for opening a new bank or financial account with a financial provider electronically (Rowe, paragraph [0012], paragraphs [0028]-[0029]). As part of Rowe's methodology for establishing an account, a "value limit" is assigned to the account (Rowe, paragraph [0012]). This value limit is the maximum amount of funds what will be held in the account, which is typically the amount of the initial deposit into the account (Rowe, paragraph [0040]). Thus, Rowe's value limit is a single number associated with a given financial account (e.g., bank account) and is **not** a limit that is tied to an entitlement group. In fact, Applicant's review of Rowe finds **no** mention of defining entitlement groups (or of roles) or the type and amount of financial transactions that may be performed by members of such entitlement groups. Additionally, Rowe makes no mention of a hierarchical entitlement structure with inheritance. With Applicant's claimed invention, in contrast, users are members of entitlement groups of a hierarchical entitlement structure, with each group having specified permissions and limits for performing financial transactions. The entitlements that may be specified and

enforced with Applicant's claimed invention include whether members of a given entitlement group are allowed to perform certain financial transactions (e.g., create wire transactions) as well as dollar limits on performance of such transactions (see e.g., Applicant's specification, paragraph [0044]).

Additionally, the limits enforced by Applicant's invention include collective limits which apply to multiple entitlement groups as provided, for example, in the following limitations of Applicant's dependent claim 12:

The method of claim 1, wherein said step of defining a plurality of entitlement groups includes defining limits applying collectively to a particular entitlement group and children entitlement groups of said particular entitlement group in said hierarchical entitlement structure.

(Applicant's claim 12, emphasis added)

These features of Applicant's invention allow an organization to define and enforce limitations applicable to the CFO of an organization as well as all those in the organization that report to the CFO. The limits applicable to the CFO apply collectively to the entitlement group including the CFO as well as to members of other child entitlement groups in the hierarchical structure (i.e., groups under the CFO) such that they cannot collectively spend more than the limit specified for the CFO (see e.g., Applicant's specification, paragraph [0047]). For example, limits may be defined using Applicant's invention such that the CFO of an organization and all users in (child) entitlement groups underneath the CFO in the entitlement structure (e.g., users in accounts receivable, accounts payable and controller groups reporting to the CFO) are collectively subject to a limit of \$50,000 per day and \$100,000 per month (see e.g., example at Applicant's specification, paragraph [48]). Rowe's solution does not allow limits to be defined in this fashion.

In the Final Rejection (page 4, re: claim 12), the Examiner references the following teachings of Win as being comparable to the above-claimed features of Applicant's invention:

The Role Admin privilege may be delegated to owners of a particular resource, for example the technical support database. Administrators in the Technical Support Department would be able to control who has access to that resource by

assigning or removing roles associated with that resource from user accounts. The list of roles that may be managed by an administrator with this privilege is limited to the roles that have been assigned to their associated Admin Role record.

(Win, col. 16, lines 59-67)

As illustrated in the above text, Win makes **no** mention of a hierarchical entitlements structure in which a particular entitlement group has a child entitlement group. Instead, Win simply describes assigning or removing roles associated with a resource. Additionally, Win makes no mention of limits on the performance of financial transactions, whether such limits are being applied to one or more entitlement groups (roles) or otherwise. In fact, as discussed above, the Examiner acknowledges that Win does not include teachings of limits on performance of financial transactions. Given that the Examiner admits Win does not teach limits on performance of financial transactions in general, it is **obvious** that Win also cannot teach defining limits which apply collectively to more than one entitlement group as provided in the limitations of Applicant's claim 12.

Applicant's solution also allows one to define both per-transaction limits and limits that are cumulative over a period of time as provided, for example, as limitations of Applicant's claim 8:

The method of claim 1, wherein said step of defining a plurality of entitlement groups includes defining limits comprising a selected one of per-transaction limits and cumulative limits over a period of time.

(Applicant's claim 8, emphasis added)

Limits for each entitlement group can be established per-transaction as well as per day, per week and/or per month for each type of activity being performed by members of a given entitlement group) (see e.g., Applicant's specification, paragraph [0151]; see also paragraph [0047]). For example, members of a "mass market consumer" group may be allowed to pay bills up to a maximum amount of \$500 per bill, with a maximum cumulative limitation of \$2,000 per week, while members of an "affluent consumer" can pay up to \$1,000 per bill, up to \$5,000 per week and may perform external transfers of up to \$10,000 per month.

The Examiner argues that Rowe provides equivalent teachings (Final Rejection, bottom page 3- top page 4, re: claim 8). However, Rowe only provides for a single value limit that is assigned to a given account (not a user or role and certainly not multiple entitlement groups) and provides that the account may expire at a given point in time (Rowe, paragraphs 12 and 14). Respectfully, Applicant fails to understand how this is at all analogous to Applicant's claim limitations of cumulative limits applying over a period of time to users having membership in a given entitlement group.

All told, Win and Rowe, even when combined, do not provide a solution including a hierarchical entitlement structure which enables one to define and enforce permissions and limits for performing financial transactions. Additionally, neither reference includes teachings of a hierarchical entitlement structure with inheritance in which a particular group inherits entitlements (e.g., permissions and limits) from another (superior) entitlement group. The combined references also do not enable one to defining both per transaction limits and cumulative limits over a period of time for each type of activity being performed for entitlement groups of the hierarchical entitlement structure. Therefore, as the Win and Rowe references, even when combined, do not teach or suggest all of the claim limitations of Applicant's claims, it is respectfully submitted that claims 1, 4-5, 7-8, 10-16, 18-22 and 25-45 (as well as other claims) distinguish over the combined references and the rejection under Section 103 should not be sustained.

#### B. Second Section 103 rejection: Win, Rowe and Barkley

Claims 2-3, 6, 9 and 17 stand rejected under Section 103 based on Win (above) in view of Rowe (above) and further in view of US Patent 6,202,066 of Barkley ("Barkley"). As to these claims the Examiner adds Barkley for its teachings regarding inheritance among roles. However, Barkley fails to cure the above-described deficiencies of Win and Rowe as to Applicant's invention.

As previously described, Applicant's claimed invention provides for a hierarchy of entitlement groups in which entitlements (e.g., permissions and limits) are inherited by child groups from other (parent) groups above it in the hierarchical structure (see e.g., Applicant's specification, paragraph [0045]; see also, e.g., Fig. 5A at 501-503). Significantly, Applicant's approach is to structure such inheritance negatively so as to

apply restrictions as one goes down in the hierarchical entitlements structure (see e.g., Applicant's specification, paragraph [0045]). With Applicant's solution the root node residing at the top of the inheritance structure, for example, has all permissions and may perform all functions in the system (Applicant's specification, paragraph [0045]). As the hierarchy is traversed downward, additional restrictions are applied (Applicant's specification, paragraph [0045]). This approach of restricting inherited permissions is included, for instance, as limitations of Applicant's dependent claim 3 as follows:

The method of claim 2, wherein said step of defining a plurality of entitlement groups includes restricting permissions inherited by an entitlement group from its parent entitlement group in said hierarchical entitlement structure.

(Applicant's claim 3, emphasis added)

Thus, Applicant's solution provides for top-down inheritance in which an entitlement group inherits permissions from its parent, but typically subject to restrictions on such permissions. Although Barkley discusses that one role may inherit from another role, Barkley takes a bottom-up, rather than a top-down, approach to inheritance. Thus, Barkley in fact teaches away from Applicant's top-down inheritance approach. As described at column 9, lines 48-51 of Barkley, a "manager" role has its own permissions and also inherits those permissions of its "subordinates" (Barkley, column 9, lines 48-51). Thus, Barkley describes expanding permissions through inheritance rather than restricting them. Another example of Barkley's bottom-up approach to inheritance is described at column 12, lines 19-26 which describes a financial advisor role inheriting privileges from an account rep role, such that the financial advisor has the permissions necessary to function as an account rep (Barkley, column 12, lines 19-26). There is nothing in Barkley to teach or suggest that the lower account rep role includes all the privileges of the higher financial role with limitations. Applicant's review of Barkley finds that while Barkley discusses various roles having different object access privileges (e.g., to read, write or delete certain objects), it does not include teachings of restricting permissions inherited from its parent in a hierarchical entitlement structure. Given Barkley's bottom-up approach to inheritance, this is not surprising. Additional restrictions would not usually be applied to managers, for example, on privileges that they inherit from lower

level subordinates.

The hierarchical structure of Applicant's claimed invention is a manner of structuring entitlements (e.g., permissions and limits) in a tree form in which the root (all permissions) is at the top, child nodes inherit permissions from parent nodes above, and the permissions inherited by a child from its parent are restricted as one traverses down the entitlement tree structure. In contrast, when one looks at the teachings of Barkley regarding inheritance, it is clear that with Barkley's solution managers (i.e., the parent role), inherit permissions held by subordinate employees (children). As shown at Fig. 5 of Barkley, and described at col. 13, lines 41-49, the "financial advisor" role inherits read permissions from "employee" and "account rep" roles as follows:

The Read permission for the files within the accounts directory is granted as a result of the fact that financial\_advisor inherits account\_rep, which has Read permission as a result of the definition of the accounts OAT. Also, financial\_advisor has Read permission on the file empl\_info as a result of the fact that financial\_advisor inherits employee and employee has Read permission for all files associated with the employee\_read OAT, as is the case for the file empl\_info

(Barkley, column 13, lines 41-49)

Barkley's also states that while the financial\_advisor role inherits permissions from the account\_rep role, the financial\_advisor role may also have additional permissions (Barkley, column 10, lines 50-55). Thus, rather than restrict the inherited permissions, the Barkley structure expands the permissions of higher-level roles by having them inherit from lower level roles. Respectfully, it is clear from this discussion, as well as review of the balance of the reference, that Barkley describes bottom-up, not top-down inheritance and thus teaches away from Applicant's claimed invention.

Any dependent claims not explicitly discussed are believed to be allowable by virtue of dependency from Applicant's independent claims, as discussed in detail above.

### Conclusion

Applicant also requests the Examiner to reconsider the prior art rejections based on the remarks set forth herein.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 925 465 0361.

Respectfully submitted,

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